

# **EXHIBIT 13**

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UNITED STATES DISTRICT COURT

FOR THE CENTRAL DISTRICT OF CALIFORNIA, SOUTHERN DIVISION

TCL COMMUNICATION  
TECHNOLOGY HOLDINGS, LTD.,  
*et al.*,

Plaintiffs,

v.

TELEFONAKTIEBOLAGET LM  
ERICSSON, *et al.*,

Defendants.

Case No. SACV14-00341 JVS (DFMx)

Consolidated with CV15-02370 JVS

**PLAINTIFFS' DIRECT  
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DR. APOSTOLOS (PAUL) KAKAES**

TELEFONAKTIEBOLAGET LM  
ERICSSON, *et al.*,

Plaintiffs,

v.

TCL COMMUNICATION  
TECHNOLOGY HOLDINGS, LTD.,  
*et al.*,

Defendants.

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Before Hon. James V. Selna

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1 essential patents. Within ETSI and 3GPP, such submissions are referred to as  
2 TDocs. But TDocs are not patents, and there is virtually no correlation between the  
3 content of a TDoc and the scope of any patent claims owned by a company like  
4 Ericsson. For a contribution analysis to accurately estimate the strength of an  
5 alleged SEP portfolio, there must be a technical basis to match the contributions to  
6 one or more patents within the portfolio.

7 407. To determine whether there is any correlation between approved  
8 technical contributions and standard-essential patents, I calculated the correlation  
9 coefficient between two data sets: the Working Groups relevant to Ericsson's  
10 alleged SEPs based on Ericsson's claim charts, and the Working Groups associated  
11 with the listing of TDocs identified by Ericsson as constituting "approved"  
12 contributions. For the second data set, I relied on the listing of over 18,000 TDocs  
13 Ericsson identified and alleges were approved for inclusion into the standards. (*See*  
14 Ericsson's First Supplemental Response to Plaintiff's Fourth Set of Interrogatories  
15 (No. 35).) As each Working Group is responsible only for certain technical  
16 specifications, the lack of correlation between these two data sets shows that  
17 Ericsson's alleged SEPs could only potentially relate to a small fraction of the over  
18 18,000 alleged "approved" contributions Ericsson identified. Given the lack of  
19 correlation between the data sets, contribution counting provides virtually no  
20 evidence as to the strength of a given SEP portfolio.

21 **A. Correlation Methodology**

22 408. I developed an approach to identify if any correlation exists between  
23 Ericsson's TDocs and its alleged SEP portfolio that categorizes the data based on  
24 the standard specifications identified in Ericsson's claim charts. Ericsson admits  
25 that it "does not maintain, in the ordinary course of business, a list correlating [the  
26 over 18,000] approved technical proposals with its patent applications, patents  
27 issued, or patent family members." (*Id.*) To correlate a single TDoc of those  
28 identified by Ericsson to one or more patents within the alleged SEP portfolio would



1 identification was easy, as T1 appears to have been responsible for a single  
2 specification, of which a descendant was noted, the responsibility of which fell to  
3 the R5 Working Group. Therefore, I allocated the T1 TDocs to the R5 Working  
4 Group.

5 419. Each of the N1, N3, and N4 Working Groups were responsible for  
6 several standard specifications, making the determination of a surrogate Working  
7 Group a bit more involved. To ensure a proper allocation, I reviewed each of the  
8 specifications associated with each closed Working Group to identify all currently  
9 open Working Groups responsible for any descendant, antecedent, or superseding  
10 document. After reviewing the available records from 3GPP, it was clear that the  
11 responsibility was transferred from one closed Working Group to a single open  
12 Working Group. Specifically, it appears that the responsibilities of the N1, N3, and  
13 N4 Working Groups were transferred to the C1, C3, and C4 Working Groups.  
14 Therefore, I allocated the N1, N3, and N4 TDocs accordingly.

15 **B. There Is Little or No Correlation Between Approved Contributions**  
16 **and Issued Patents.**

17 420. I considered the distribution of the number of instances a standard  
18 related to a given Working Group was used in the claim charts provided by  
19 Ericsson, as identified by the point values I allocated, as I discussed above. For  
20 example, the R1 Working Group received a score of 67.75 of the 219 points, and R2  
21 received 75.92. These two Working Groups dominated the scene. The entire  
22 distribution is shown in the tab "Claim Charts WG" of the spreadsheet I prepared.  
23 (Ex. 1323.) The spreadsheet further includes a tab labeled "Ericsson TDoc Dist,"  
24 showing the distribution of the over 18,000 TDocs that Ericsson identified. To the  
25 extent that the contributions represent a good proxy to the patents that Ericsson  
26 claims are standards-essential, these two sets of numbers should be highly correlated  
27 as they are intimately related by the corresponding Working Group.

28 421. As stated above, I calculated the correlation coefficient of these two

1 data sets. The correlation coefficient may be calculated using a sample-based  
2 formulation or a population-based formulation. Although a population correlation  
3 coefficient yields a slightly smaller result, both approaches are acceptable. For this  
4 analysis, I calculated a sample correlation coefficient. The correlation coefficient is  
5 a number between “-1” and “1.” If two sets of numbers are highly correlated in the  
6 same direction, meaning when one variable tends to be large so does the other  
7 variable, the correlation coefficient will be close to “1.” If the correlation is high,  
8 but in the opposite direction, meaning when one variable tends to be large the other  
9 variable tends to be small, the correlation coefficient will be close to “-1.” If the  
10 two sets are independent, the correlation will be mathematically zero, or practically  
11 close to zero.

12 422. The calculations and result are shown in the tab labeled “RHO” of the  
13 related spreadsheet. (Ex. 1323.) As it turns out, the sample correlation coefficient is  
14 approximately 0.02915, which for all practical purposes is indistinguishable from  
15 zero. In other words, the two sets of numbers are not correlated at all, proving that  
16 the over 18,000 TDocs that Ericsson provided as evidence of the strength of its  
17 alleged SEP portfolio actually provide no such evidence at all. When viewed with  
18 respect to the totality of TDocs submitted to each Working Group by Ericsson, out  
19 of the over 18,000 TDocs, this lack of correlation is more clearly evident. The  
20 “ORDERED” tab ranks the Working Groups based on the total number of  
21 Ericsson’s identified approved contributions associated with each Working Group.  
22 (*Id.*) Although Ericsson identified the 219 family/standard pairs as predominately  
23 relevant to the R1 and R2 Working Groups, these two Working Groups represent  
24 only the sixth and eleventh ranked Working Groups based on total approved  
25 Ericsson TDocs, respectively.

26 423. In order to better appreciate why a correlation coefficient of 0.02915 is  
27 practically zero, I calculated the correlation coefficient between two randomly-  
28 generated set of values. The results can be found in the tab labeled

1 “RAND\_FIXED” of the spreadsheet attached to my Expert Report. (*Id.*) I used the  
2 Excel random function “rand()” to generate two sets of random numbers between  
3 “0” and “1,” all of them independent of all other random numbers. The size of each  
4 set is 18, the same as with the actual data of the Working Groups. In other words,  
5 the two sets of 18 numbers each are independent and thus their correlation  
6 coefficient should be close to zero. As it turns out, it is approximately 0.10709,  
7 which reinforces my statement that 0.02915 is practically zero. Since the function  
8 “rand()” will generate new values each time it is invoked, I “froze” one set of results  
9 in the spreadsheet to illustrate the point. The “experiment” could be re-run  
10 repetitively to further support that such a set of randomly generated values would  
11 have a correlation coefficient close to zero, much as 0.02915 is.

12 C. **Technical Analysis of Sample TDocs Identified By Ericsson Shows**  
13 **a Lack of Support Regarding the Strength of Ericsson’s Portfolio.**

14 424. As shown through my correlation analysis, there is essentially zero  
15 correlation between the two data sets. For further context, Dr. Valenti and I took it  
16 upon ourselves to analyze several of Ericsson’s identified approved contributions.  
17 There are various types of TDocs that are approved during the standardization  
18 process, many of which are not inventive in nature. For example, an approved  
19 TDoc might merely address a text proposal, such as rephrasing, which is not an  
20 actual inventive contribution to the standard that is protectable by a patent.  
21 Moreover, approved TDocs may not be directed to relevant to User Equipment. For  
22 example, an approved TDoc may be directed to text proposals concerning portions  
23 of the standard relevant only to base stations. As these types of contributions are  
24 non-inventive or irrelevant to User Equipment, these TDocs fail to provide any  
25 evidence as to the strength or essentiality of Ericsson’s alleged SEPs. I will discuss  
26 several examples of these types of TDocs that were included in Ericsson’s listing, to  
27 help provide more context as to the correlation results discussed above. These  
28 examples are not meant to be in any way exhaustive, but to merely provide a few

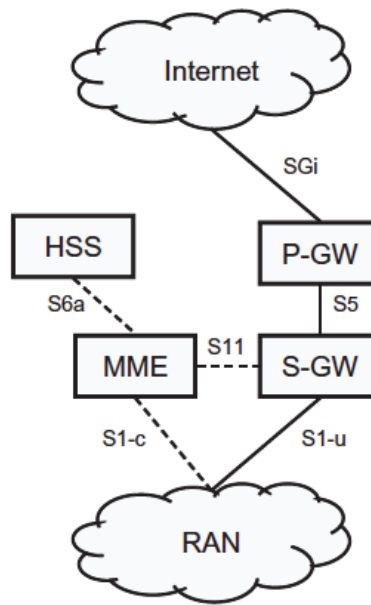
1 examples of the types of irrelevant TDocs Ericsson has included in its listing.

2 1. TDoc C1-060692

3 425. This TDoc is a Change Request, or “CR,” seeking to modify technical  
4 specification 24.206, entitled “Voice Call Continuity between the Circuit-Switched  
5 (CS) domain and the IP multimedia (IP) Core Network (CN) Subsystem.” (Ex.  
6 1388.) This technical specification relates to the core network, and therefore does  
7 not involve the handset. Moreover, the requested change is merely a “correction of  
8 notation for the signaling flows.” The justification given is that the “notation for CS  
9 and IMS control signaling and media are similar.” The only proposed action is to  
10 change the notation for the different control signals to make it “easier to see the  
11 difference between CS and IMS” which “can avoid possible misunderstanding  
12 during implementation.” This CR is a clarification and does not introduce or  
13 produce any new features whatsoever.

14 2. TDoc C4-080437

15 426. This TDoc is a joint submission by Ericsson and several other member  
16 organizations, related to technical report 23.820, entitled “Study on IMS Restoration  
17 Procedures.” (Ex. 1339.) This technical report proposes a “problem scenario”  
18 involving the Home Subscriber Server, or “HSS.” The HSS is a database containing  
19 subscriber information. (Ex. 1416 at p. 144.) The HSS resides within the Evolved  
20 Packet Core, or “EPC,” which is the core network, as illustrated by the following  
21 Figure 8.1 from the Dahlman text.



**FIGURE 8.1**

Core-network (EPC) architecture.

(See *id.* at 144.)

427. The problem scenario focused on overcoming interruptions of the HSS due, for instance, from hardware faults, resulting in potential loss of critical information. (Ex. 1337 at p. 15.) The recommendation in the TDoc is: “The contribution proposes to conclude that any IMS Core Network implementing IMS Restoration Procedures should include an HSS that provides sufficient redundancy so that it is possible to assume that critical data is always available.” As the contribution is only contemplating the redundancy of data stored at the HSS within the EPC, it does not in any way relate to handsets. Moreover, the proposed text does not cover how to technically implement the HSS in such a manner, only that some information is deemed “critical” and should be preserved in the implementation. The contribution is also related to a technical report, which contains mostly explanatory material as opposed to a technical specification. Standards are defined in the set of technical specifications, not in technical reports. Thus, for several independent reasons, this CR does not introduce or produce any new patentable features whatsoever.